R E M A R K S

Claims 1-28 are present in the application. Claims 5, 11, 14-21 and 28 are withdrawn from further consideration as being drawn to a non-elected species.

Claims 1-4, 6-10, 12, 13, and 22-27 are rejected under 35 USC §112, first paragraph. This rejection is respectfully traversed.

Page 3, line 28 through page 4, line 15 of the present application, for example disclose that when the ascending force coefficient of the blade is positive, the blade produces a downward airflow. The ascending force coefficient of the blades can be adjusted to be positive by for instance adjusting the blade angles to be positive. Accordingly, the ascending force coefficient is a coefficient of the upward force needed for lift. A further explanation is provided below in relation to the cited art.

shown

Regarding claim 22, when the blades are rotated, the joint rings rotate together with the blades. The blade angles can be adjusted for example if the blades are of an elastic material or if there is a joint near the end of the blade to turn. See for example page 7, line 23 through page 8, line 3.

detail section

these to Fig 12, non elected species

Claims 1-4, 6-10, 12, 13, 22 and 23-27 are amended to address the 35 USC §112, second paragraph rejections noted in the Official Action.

Claims 1-4, 6-10, 12, 13, 22, 25 and 27 are rejected as being anticipated by MEEK (Canadian Reference 2195581). This rejection is respectfully traversed.

Independent claims 1 and 6 of the present application recite an aircraft rotor having at least two blades wherein the blades when rotating form a conical surface. By way of example, page 3, lines 19-27 of the present application disclose that blades 4 are arranged on a rotor rim 2 at approximately 45° angle to the horizontal plane so that the blades 4 form a conical surface when rotating. This feature is not disclosed by MEEK.

Not claimed

Claims 1 and 6 further recite that to provide ascending force, ascending force coefficients of the blades can be adjusted to be positive and to provide propulsive force and the ascending force coefficients of the blades on a forward side and on a rear side can be adjusted to have opposite signs. As disclosed on page 3, line 28 through page 4, line 15, for example, especially page 3, lines 28-34, the blade angles of blades 4 and 5 can be adjusted to be positive, thus creating a positive force coefficient of all of the blades as shown in figure 1b so that the blades produce a downward air flow and the aircraft takes off in a vertical manner.

swashplate!

In contrast, MEEK discloses a triple mode aircraft having a helicopter mode, a fixed wing type mode and a conventional gyrocopter mode. As disclosed on page 4, lines 20-

23 of MEEK, the forward speed (propulsive force) is varied by changing the pitch on propeller 6. Accordingly, propeller 6 provides horizontal flight of the aircraft in MEEK. MEEK does not disclose or suggest that ascending force coefficients of the blades can be adjusted to provide ascending force and to provide propulsive force. this can be produced in upward and in horizontal direction

In addition, MEEK on page 3, line 47 (second to last line) through page 4, line 5 discloses that the rotors 3,3' can be stopped as shown in figure 8 and each of the rotors would have a reverse pitch setting. Accordingly, MEEK neither teaches that ascending force coefficients of the blades can be adjusted to provide propulsive force, nor that the ascending force coefficients of the blades on a forward side and on a rear side can be adjusted to have opposite signs when the blades are rotating as recited in claims 1 and 6 of the present application.

Claims 2-4 depend from claim 1 and claims 7-10, 12, 13, 22, 25 and 27 depend from claim 6 and further define the invention and are also believed patentable over MEEK.

Claims 23 and 26 are rejected as being unpatentable over MEEK in view of LANGFORD 5,106,035 and MARSI 6,158,960. This rejection is respectfully traversed.

LANGFORD is only cited for the teaching of electric motors to rotate rotors and powered by fuel cells. MARSI is only cited for the teaching of electric motors to change the blade

angles. Neither LANGFORD nor MARSI teach or suggest what is recited in claim 6 of the present application. As noted above, MEEK does not disclose or suggest what is recited in claim 6. Since claims 23 and 26 depend from claim 6, and further define the invention, the combination of references does not render obvious claims 23 and 26.

Claim 24 is rejected as unpatentable over MEEK in view of LANGFORD and ITURRALDE 5,683,060. This rejection is respectfully traversed.

ITURRALDE is only cited for the teaching that part of the surfaces of an aircraft are made of solar cells. ITURRALDE does not teach or suggest what is recited in claim 6. As noted above, neither MEEK nor LANGFORD teach or suggest what is recited in claim 6. Since claim 24 depends from claim 6, and further defines the invention, the combination of references would not render obvious claim 24.

Claims 1 and 6 are believed in condition for allowance. Claims 1 and 6 are also believed generic. Accordingly, reconsideration and allowance of claims 5, 11, 14-21 and 28 is respectfully requested.

To clarify the invention please find attached Figures A-E for explanatory purposes only. In the Figures

F_t = total force acting on the wing

F_v = vertical component

F_p = horizontal (propulsive) component and

V = flying speed.

F_t is the total force acting on the wing and because the wing when rotating forms a conical surface the total force has a vertical component F_v and a horizontal component F_p.

$F_t = 1/2\varphi A C_L \nu_0^2$ wherein

Φ = air density kg/m^2

A = surface area of the wing

ν_0 = average velocity of the wing and

C_L = ascending force coefficient which depends for example from the blade angle.

If C_L is positive the total force F_t acts upwards and if C_L is negative the total force F_t acts downwards.

In figure A the aircraft is ascending whereby all the ascending force coefficients are positive and of the same size whereby the vertical components F_v are of the same size and pointing upwards. The propulsive components F_p cancel each other. When the total forces F_t are summarized only a vertical ascending force act on the aircraft.

In figure B the aircraft is controlled to fly horizontally whereby the total force F_t of the front side is lowered for example by amending the blade angle to be smaller. This means that at the front side the total force F_t is smaller and therefore also the vertical component F_v and the propulsive

how?

component F_p are smaller. The front side of the aircraft goes down and the sum of the propulsive components F_p points forward whereby the total propulsive force moves the aircraft forward (to the left in the figures).

wouldn't this crash the craft?

In figure C the horizontal speed is further increased whereby the ascending force coefficients of the blades are controlled to be = 0 whereby the blades on the front side of the aircraft do not provide any force at all. The wings at the backside of the aircraft provide the whole propulsive force F_p.

Fig ? D?

In figure D the horizontal speed of the aircraft has been increased by controlling the ascending force coefficient of the wings at the front of the aircraft to be negative for axample by changing the blade angles negative whereby the total force F_t points downwards and the propulsive components F_p of all the front and back wings point forward whereby the total propulsive force F_p is very high.

The same situation as in figure D has been disclosed in the specification for example in figures 16a and 16b. So it can be seen that the propulsive force of the aircraft can be controlled by adjusting the ascending force coefficient (C_L) in all flying conditions.

As can be seen from figure E

$F_p = F_a \sin\alpha$ and $F_v = F_t \cos\alpha$

Wherein

α = the angle of the cone (the angle between the blade and the horizontal surface).

Below is a table which shows that if the angle of the cone with respect to the horizontal surface is low, for example below 5° the propulsive force s negligible. However if the cone angle is for example 10° the propulsive force is 17% of the total force and yet the vertical force is 98% of the total force. If the angle is 30° the propulsive force is already 50% and the vertical force is still as high as 87%. This means that the rotor of the invention can provide high propulsive force whereby the vertical force has not diminished substantially. how

F_t = 100%

a	F_p	F_v
0	0	100%
2°	3.5%	99.9%
5°	8%	99.6%
10°	17%	98%
15°	26%	97%
20°	34%	94%
30°	50%	87%
45°	70%	70%

In view of the present amendment and the foregoing remarks, it is believed that the present application has been placed in condition for allowance. Reconsideration and allowance are respectfully requested.

Attached hereto is a marked-up version of the changes made to the claims. The attached page is captioned "VERSION WITH MARKINGS TO SHOW CHANGES MADE."

Respectfully submitted,

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<u>VERSION WITH MARKINGS TO SHOW CHANGES MADE</u>

Claim 1 has been amended as follows:

--1. (amended) An aircraft rotor which is arranged to rotate around a substantially vertical axis and which comprises at least two blades, wherein the blades when rotating form a conical surface,

__________whereby to provide ascending force, [the] ascending force coefficients of the blades can be adjusted to be positive and

__________to provide propulsive force, the ascending force coefficients of the blades on [the] <u>a</u> forward side and on [the] <u>a</u> rear side can be adjusted to have opposite signs.--

Claim 6 has been amended as follows:

--6. (amended) An aircraft which comprises a body and at least one rotor connected to the body and arranged to rotate around a substantially vertical axis and comprising at least two blades, wherein the blades when rotating form a conical surface,

__________whereby to provide ascending force, [the] ascending force coefficients of the blades can be adjusted to be positive and

__________to provide propulsive force, the ascending force coefficients of the blades on [the] <u>a</u> forward side and on [the] <u>a</u> rear side can be adjusted to have opposite signs.--